

# Slope Formula

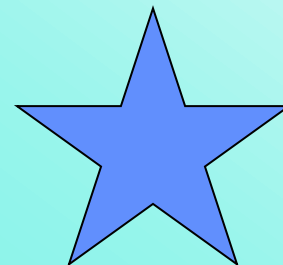
Finding the Slope of a Line  
given 2 Points.

Slope can be expressed different ways:

$$m = \frac{(y_2 - y_1)}{(x_2 - x_1)} = \frac{\textit{rise}}{\textit{run}} = \frac{\text{vertical change}}{\text{horizontal change}}$$



$$m = \frac{(y_2 - y_1)}{(x_2 - x_1)}$$



1) Find the slope of the line that passes through the points  $(-2, -2)$  and  $(4, 1)$ .

When given points, it is easier to use the formula!

$$m = \frac{(y_2 - y_1)}{(x_2 - x_1)}$$

$y_2$  is the y coordinate of the 2<sup>nd</sup> ordered pair ( $y_2 = 1$ )

$y_1$  is the y coordinate of the 1<sup>st</sup> ordered pair ( $y_1 = -2$ )

$$m = \frac{(1 - (-2))}{(4 - (-2))} = \frac{(1 + 2)}{(4 + 2)} = \frac{3}{6} = \frac{1}{2}$$

2) Find the slope of the line that passes through  $(3, 5)$  and  $(-1, 4)$ .

1. 4

2. -4

 3.  $\frac{1}{4}$

4.  $-\frac{1}{4}$

3) Find the slope of the line that goes through the points  $(-5, 3)$  and  $(2, 1)$ .

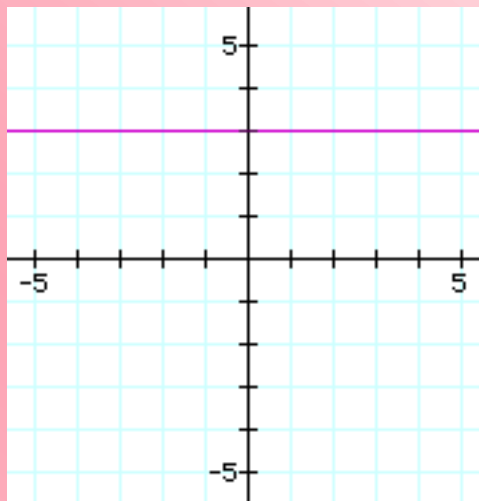
$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{1 - 3}{2 - (-5)}$$

$$m = \frac{1 - 3}{2 + 5}$$

$$m = \frac{-2}{7}$$

# What is the slope of a horizontal line?

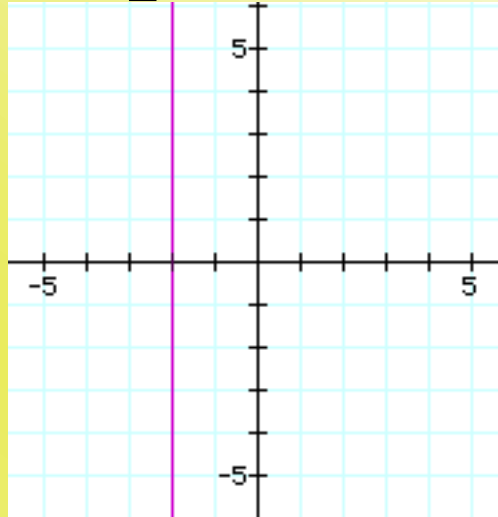


The line doesn't rise!

$$m = \frac{0}{\text{number}} = 0$$

All horizontal lines have a slope of 0.

# What is the slope of a vertical line?



The line doesn't run!

$$m = \frac{\textit{number}}{0} = \textit{undefined}$$

All vertical lines have an undefined slope.